

# **Transformation Study Report**

**April 27, 2001**

**Transforming Military Operational Capabilities**

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## **Transforming Military Operational Capabilities**

**General Jim McCarthy, USAF Retired -- Chairman**

**Admiral Stan Arthur, USN Retired**

**Mr. Vic DeMarines**

**Dr. Ted Gold**

**Dr. Bill Graham**

**General Bill Hartzog, USA Retired**

**Dr. Paul Kaminski**

**General Carl Mundy, USMC Retired**

**Admiral Bill Studeman, USN Retired**

**General Larry Welch, USAF Retired**

# *Overview*

- **Charter, Approach, and Purpose of Transformation**
- **Broader Transformation Capabilities**
- **Transforming Conventional Capability**
- **Joint Response Forces Capabilities**
- **Military Capabilities**
- **Transforming Capabilities**
- **Summary of Transformation Programs**
- **Transformational Research and Development**
- **Transformation Enablers**
- **Study Conclusions**

# *Transformation Study Group Charter and Approach*

## **Charter**

- **The Study Group will identify**
  - **Capabilities needed by US forces to effectively address the 21<sup>st</sup> century security environment**
  - **Capabilities needed to meet national intelligence and space defense needs**
  - **Transformation recommendations – how to develop and field the desired capabilities**
  - **Opportunities for cost savings, where feasible**
- **The Study Group will complete its work and brief the Secretary by 30 April, 2001**

## **Approach**

- **Identify key capabilities**
- **Select key transformation areas to explore**
- **Take briefings, conduct individual research**
- **Develop transformation priorities and gain group consensus**
- **Build final report briefing**

## *Describing Transformation*

Changes in the concepts, organization, process, technology application and equipment through which significant gains in operational effectiveness, operating efficiencies and/or cost reductions are achieved

## *Why Transform*

- Preserve current strengths in danger of eroding in the face of new challenges
- Meet new threat and environments
- Exploit new opportunities, e.g., those offered by the information technology revolution

## *Fundamental Purpose of Transformation*

Move from marginal superiority over Cold War opponent to dominance across the full spectrum of 21st century military operations – full spectrum dominance with Joint Response Forces

## *Scope of Transformation*

- Focus the effort on a set of very high leverage capabilities that enable new ways to fight (10%)
- Support this focus by Improving/accelerating critical complementary capabilities (10%)
- Maintain course and momentum of sound capabilities that support transformational vision (80%)

# *Broader Transformation Capabilities*

- **Conventional Forces depend on military capabilities that are also essential beyond their support of military operations:**
  - **Missile Defense**
    - **Ballistic**
    - **Cruise**
  - **Space Superiority**
  - **Information Dominance**
  - **Intelligence**
  - **Forward Deployed Forces**

# *Transforming Conventional Capability*

- **Focus transformation on Global Joint Response Forces**
- **Ensure US forces have the capabilities to operate across the full spectrum -- major conflict through peacetime activities**
- **Significantly enhance operational capability by building a true joint integrated force capability**
  - Organize, train and equip a standing, deployable joint command and control system
  - More frequent exercising and experimentation with Joint forces
- **Transform early entry forces (the Joint Response Force Concept) as the first phase of eventual transformation of more of the force --**
  - Priority recipient of proven transformational technologies and concepts
  - Experimentation and actual use will determine when and what to transform
- **Build on forward deployed capability (stationed and rotating deployments)**

# ***Why We Use the Early Entry Joint Response Force Concept As the Focus for Transformation***

- **It meets a US strategic need: a greatly enhanced capability to act decisively before the facts on the ground become too hard to change**
  - Relevant to a range of situations: to stop the dying, stop the killing, stop aggression and prevent use of WMD
- **It presents an ambitious and demanding set of objectives much beyond what we have today and whose achievement would be truly transformational.**
- **Its “tip of the spear” capabilities permits longer effective life for the legacy forces**
  - They can then be used in new and innovative ways
  - Enables more efficient use of both existing and new systems/capabilities
- **It builds on emerging efforts in the Services and Joint Communities**
  - Future Combat System, Network-Centric and Effects-Based Operations, Operational Maneuver from the Sea, Rapid Decisive Operations
- **Its achievement does not require new physics or technical discovery**
  - Does require the challenging integration of available technologies into new concepts, doctrine, organizations and systems
- **The enabling capabilities needed to achieve the Joint Response Force objectives are broadly relevant to other elements of the force and other situations**

# *Future Warfighting Concepts -- New and Different*

- **No capability is more important than situational knowledge shared among all elements of the joint force (much greater emphasis on “shared,” “all,” and “joint”). This shared situational knowledge provides the foundation for new capabilities.**
  - Knowledge, vice just awareness, to capture experience, context, training, judgment
  - Shared situational knowledge, guided by commander’s intent, enables the self-synchronization needed to operate inside the adversary’s decision cycles
- **New warfighting concepts include:**
  - Projecting force both rapidly and potently to stop the aggression, killing, dying ...
  - Combining precision with speed (controlling the tempo)
  - More parallel, continuous and seamless operations (vice sequential, scheduled and segmented)

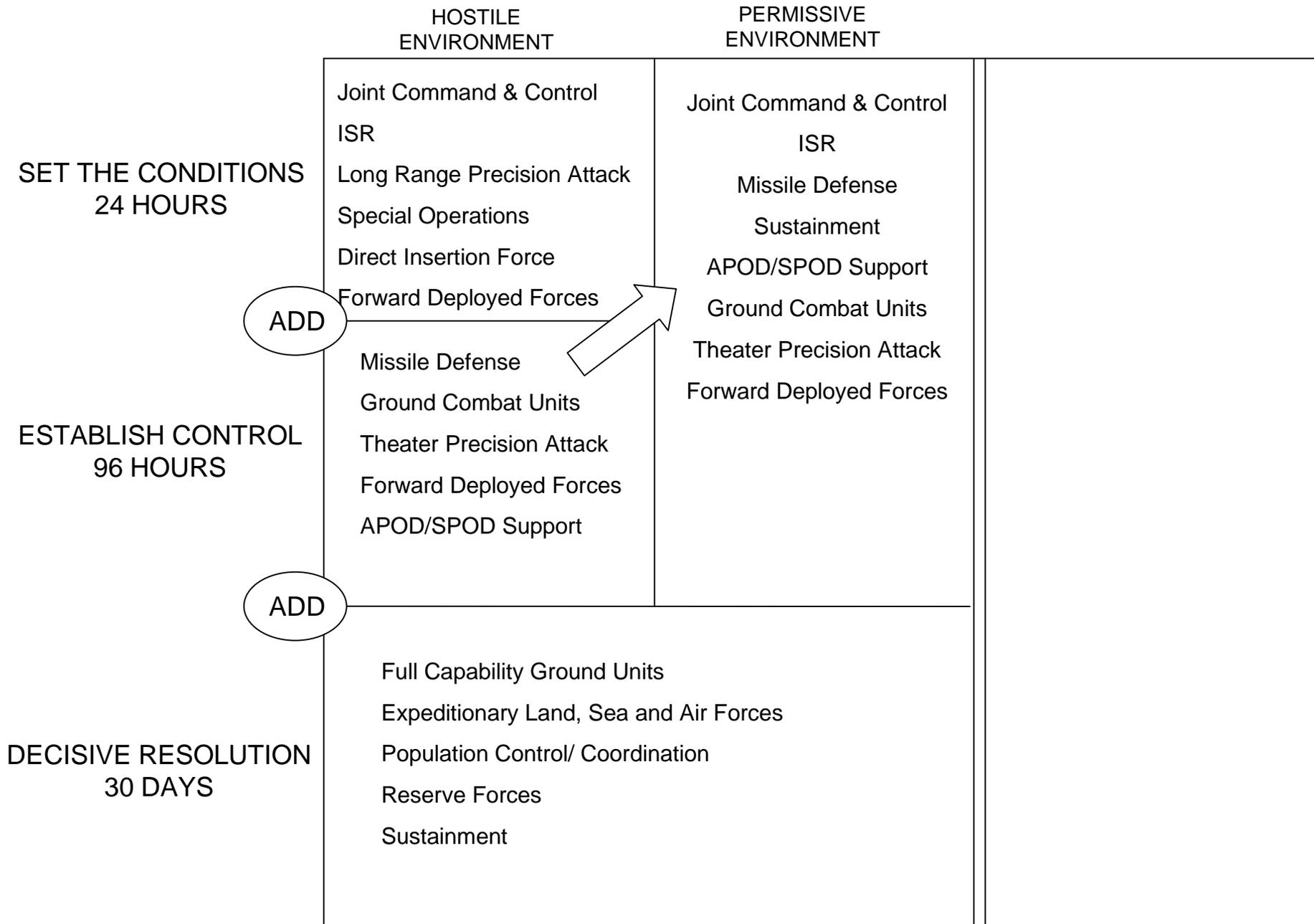
# *Analytic Approach*

- **Examine stages of military operations**
  - Set the Conditions
  - Establish Control
  - Decisive Resolution
- **Organize by key military capabilities**
  - Achieving Information and Decision Superiority
  - Striking with Precision
  - Deploying and Sustaining Military Power Rapidly
  - Dominating Land, Sea, Air and Space Battlespace
- **Arrange into transformation groups**
  - Transformational, enabling new ways to fight: Group A
  - Transformational, preserving capabilities for new ways to fight: Group B
  - Programs That Provide Robustness to Transformation: Group C
- **Availability**
  - By 2005
  - 2005 - 2010
  - After 2010

# Joint Response Force Capabilities

<b>War-Fighting Capabilities</b>				<b>Transformation Timetable</b>		
<b>Early Entry Force Characteristics</b>	<b>Set Conditions (Engaged Within 24 Hours)</b>	<b>Establish Control (Engaged Within 96 Hours)</b>	<b>Decisive Resolution (Engaged Within 30 Days)</b>	<b>Early 05</b>	<b>Mid- Range 05 - 10</b>	<b>Future 10</b>
<b>Achieving Information and Decision Superiority</b>	A B C					
<b>Striking with Precision</b>	A B C					
<b>Deploying and Sustaining Military Power Rapidly</b>	A B C					
<b>Dominating Land, Sea, Air and Space Battlespace</b>	A B C					

# JOINT RESPONSE FORCE CAPABILITIES



# *Elements of the Joint Response Force Concept*

- **Deployable Joint Command and Control system**
- **Tailorable force modules that train and exercise together**
- **Robust connectivity**
  - horizontal and vertical within the force
  - reachback to expertise and resources
- **Pervasive networks of intelligence, surveillance, reconnaissance and targeting assets**
  - enables shared situation understanding, precision targeting and maneuver
- **Long range precision strike and Information Operations**
- **Forward deployed forces**
- **Rapidly deployable ground component of the joint force**
  - inserted directly into the battlespace ready to fight
- **Deploy and sustain without buildup of vulnerable logistic nodes and lines of communication**
- **Able to cope with WMD, missiles, mines, other anti-access measures**

# *Set the Conditions in a Hostile Environment*

- **Pre-contingency preparation**
  - Commander's preparation of the battlefield
  - Coalition building
  - ISR support to early allied operations
- **Rapid response (within 24 hours) with the right mix of forward-deployed and immediately employable forces assures access to crisis area and freedom of action for subsequent operations:**
  - National and theater ISR assets expand Situational Awareness, confirm location and posture of targets for initial attacks, do post-strike assessment, identify areas for force insertion
  - Stealthy bombers, standoff cruise missile carriers, and sea platforms destroy enemy missile launchers, IADS, other anti-access weapons
  - Stealthy fighters gain control of airspace and strike with precision
  - Joint Command and Control capability deploys to region and arrives ready
  - SOF infiltrate for strategic reconnaissance, position for direct action
  - Direct insertion forces (airborne or carried in rotary-wing or fixed-wing STOL aircraft and or amphibious platforms) attack enemy critical nodes to limit or foreclose enemy options, draw enemy ground forces out of hiding for attack by long range precision strike

# *Establish Control in a Hostile Environment*

- **Follow-on response (within 96 hours) with mix of potent forces halts aggressive behavior and lays groundwork for decisive operations to resolve the crisis**
  - **Expand missile defense coverage**
  - **Expand information base**
  - **Maritime and afloat prepositioned forces arrive, to expand and support operations**
  - **Ground combat units conduct distributed operations to threaten enemy Command and Control nodes, capture information, and force enemy forces out of hiding**
  - **Available platforms conduct theater precision attack**
  - **Prepare air and sea ports for follow on forces**
  - **While achieving decisive effects is the goal, the Joint Response Force will also continue to set the conditions for extended operations as necessary**

# ***Set the Conditions and Establish Control in a Permissive Environment***

- **Joint Response Forces deploy to crisis area to deter, dissuade or conduct combat operations.**
  - **National and theater ISR assets expand Situational Awareness**
  - **Standing Joint Command and Control deploys to region, plans en route, arrives ready**
  - **Sea-based air and missile defenses extend protection over lodgment area; ground-based defenses extend protection**
  - **Direct insertion forces (airborne, air-landed, and amphibious) are positioned to limit or foreclose adversary options**
  - **Preparation of air and sea ports for follow-on forces continues**
  - **Land- and sea-based prepositioned forces prepare for action**
  - **Additional forces that can apply combat power without extensive buildup arrive and are postured for subsequent operations. While achieving decisive effects is the goal, the Joint Response Force will also set the conditions for extended operations as necessary**
- **Long Range Precision Attack forces and Direct Insertion forces on alert posture for rapid response to hostilities**

# *Decisive Resolution*

- **As ports and bases are secured, follow-on elements arrive (within 30 days) to undertake operations aimed at isolating and rendering ineffective remaining enemy capabilities. If needed, this force conducts a short, violent offensive to bring about end state conditions. Force then initiates stability and support operations and prepares for transition to a peacekeeping/ humanitarian force. Follow-on forces for decisive resolution include:**
  - **Full capability ground forces (Active and Reserve Component)**
  - **Air expeditionary forces**
  - **Additional sea-based forces**
  - **Sustainment**
  - **Population control/coordination**

# *Military Capabilities*

- **Achieving Information and Decision Superiority**
  - Command and Control
  - Information and Communications
  - Intelligence, Surveillance and Reconnaissance
  - Information Operations
- **Striking with Precision**
  - Long Range Precision Attack
  - Time Critical Precision Targeting
  - Supporting Forces
  - Direct Force Insertion
- **Deploying and Sustaining Military Power Rapidly**
  - Command and Control
  - Deploying
  - Focused Logistics
  - Forward Basing and Infrastructure
- **Dominating Land, Sea, Air and Space Battlespace**
  - Command and Control
  - Maneuver and Mobility
  - Intelligence
  - Fires and Precision Attack
  - Logistics
  - Protection
  - Nuclear Chemical and Biological Defenses

# *Achieving Information and Decision Superiority*

- **Value of the Capability**

- To a much greater extent than today, be able to conduct operations that:
  - Operate inside the adversary's decision cycles
  - Combine both precision and speed (controlling the tempo)
  - Can respond rapidly and potently to the full range of contingencies
  - Are parallel, continuous and seamless rather than sequential, scheduled and segmented
  - Match tactical actions to strategic and operational ends (effects-based operations)
- Move from multi-service operations that merely deconflict services' jobs to joint operations that exploit the potential for synergy of true teams (whole greater than sum of the parts)

- **Critical Elements**

- **Command and Control**
- **Information and Communications**
- **Intelligence, Surveillance and Reconnaissance**
- **Information Operations**

# ***Achieving Information and Decision Superiority: Command and Control***

## **Key Operational Capabilities**

- **A cohesive, always available, joint Command and Control system (people, networks and decision tools) able to conduct rapid and decisive operations with distributed joint forces across the full spectrum of contingencies**

## **Enabling Capabilities**

- **Joint Task Force headquarters (vice Service-centric)**
  - **Cohesive standing teams (vice pick-up)**
  - **Small, mobile, employing reachback, collaborative tools**
  - **Flatter, adaptive structure**
- **Standards of readiness, response and performance (expect and enforce these standards as we do for weapon systems and other force elements)**
- **Integrated planning, execution, assessment (vice sequential and separate)**
  - **Family of decision support tools**

# ***Achieving Information and Decision Superiority: Command and Control***

## **Key Transformation Programs**

**"A"**

- **Develop Joint Command and Control as a core competence**
  - **Provide JFCOM the resources and authority (working with other CINCs) to design, organize and equip prototype lean, distributed and adaptive Command and Control system and associated joint headquarters**
    - **Establish more frequent, tailored training and exercise cycles to provide the necessary levels of readiness and cohesion for those forces that may be part of the Joint Response Force**
    - **Establish a major cooperative JFCOM/DARPA program to develop new joint command and control systems and headquarters**
    - **Co-evolve new Command and Control concepts, doctrine, organizations, leader development and training with technology and materiel**
    - **Involve interagency and coalition partners**

# ***Achieving Information and Decision Superiority: Command and Control***

## **Key Transformation Programs (Continued)**

**“A”**

- **Develop Joint Command and Control as a core competence (2)**
  - **Establish and enforce standards of performance, readiness, response**
    - **Treat joint Command and Control (and associated networks) as we do combat systems**
  - **Establish lean standing, deployable joint headquarters for rapid joint force response at the regional CINCs**
  - **Evolve capabilities from JFCOM and theater experiments and exercises**
  - **Implement Family of Interoperable Operating Pictures (FIOP) and other collaborative tools for planning, execution and assessment**
    - **Multi-level, user tailored**

# ***Achieving Information and Decision Superiority: Information and Communications***

## **Key Operational Capabilities**

- **Robust networking among all elements of the Joint Force and supporting data bases and other resources that provides the promulgation of commander's intent, shared situational knowledge (including fire control quality), feedback and assessment**
  - **Horizontal as important as vertical**
  - **Need also to extend to interagency and multinational partners**

## **Enabling Capabilities**

- **Web-based, robust, wide-band, ubiquitous networks with associated information management capability**
  - **Integrated space-based capabilities and airborne relay to provide robust global reach**
  - **Pervasive, flexible tactical entry portal into the network**
  - **Intelligent software agents to monitor the network and support users**
  - **Data and symbology standardization (or data bases that can communicate with each other)**
  - **Use of commercial standards and systems to reduce DoD investment and insure a growth path**

# ***Achieving Information and Decision Superiority: Information and Communications***

## **Key Transformation Programs**

**“A”**

- **Establish much more robust and higher capacity reachback and intra-theater connectivity**
  - **Establish Joint Signal Brigade (extension of JCSE) to coordinate and direct activity for joint communication assets**
  - **Field Teleport – in-theater nodes to facilitate reachback (Phase 1 has been approved but only after overcoming strong Service opposition)**
  - **Modify GBS terminals and injection systems**
- **Modify/accelerate JTRS program to develop common battlefield data system (becomes pervasive in-theater user portal to the GIG)**
- **Accelerate fielding of Joint Airborne Communication Relays for tactical and ground-air-space (with laser up-links) connectivity**
- **Develop and field national EHF and Laser SATCOM systems to support DoD and IC**
- **Assign clear responsibility and resources to an executive agent to plan and direct development of this robust capability**

# ***Achieving Information and Decision Superiority: Intelligence, Surveillance and Reconnaissance***

## **Key Operational Capabilities**

- **An engagement quality, shared, comprehensive, dynamic depiction of the entire battle space that enables commanders to shape the battle as well as engage targets**
  - Not merely sensor-to-shooter, but sensor-to decider-to action

## **Enabling Capabilities**

**ISR assets that are**

- **Networked**
  - Common geo-spatial reference
  - Tasking, fusion, tracking, discrimination and other sensor data exploitation tools
  - Everything on the network becomes a sensor (eyeballs, laser range finders, smart weapons)
- **High Density**
  - Upgrades of airborne sensors, many more UAVs, introduction of space- based radar (to provide persistent, operationally useful coverage)
  - Multi-phenomenology: advanced radars, hyperspectral, unattended ground sensors
- **Responsive to the Joint Force Commander**
  - Available for pre-hostility presence, engagement and intelligence preparation of the battlefield as well as an “ISR Deterrent” option to restrain/influence adversary’s behavior

# ***Achieving Information and Decision Superiority: Intelligence, Surveillance and Reconnaissance***

## **Key Transformation Programs**

**“A”**

- **Network existing ISR assets (space, air and other)**
  - Enhance tasking, processing, exploitation dissemination of national assets
  - Accelerate fielding of geo-location referencing, tasking, tracking, discrimination, fusion and other sensor exploitation tools
  - Establish a simulation capability to familiarize JTF commanders and staff with ISR and Targeting capabilities before they have to use them in real operations.
- **Turn Low Density/High Demand ISR and Targeting assets into a high density, networked ISR and Targeting capability responsive to Joint Force and subordinate Commanders**
  - Increase substantially the quantities and capabilities of unmanned platforms
    - Global Hawk family, UAV, Aerostats, Unattended internetted ground sensors, foliage penetrating sensors, ground penetrating sensors
    - Complement the unmanned systems with selected upgrades of sensor suites on manned airborne platforms : AWACs, JSTARs, E2C...
  - Add space-based radar (persistent, all weather)
  - Increase HUMINT through increased FAOs, language skills, multinational cooperation

# ***Achieving Information and Decision Superiority: Information Operations***

## **Key Operational Capability**

- The elements of IO fully integrated into campaign operations that allow Joint Force Commanders to fight for, and achieve, information superiority
  - The fight for information superiority becomes as essential and natural to the Joint Force Commander (JFC) as the fight for air superiority

## **Enabling Capabilities**

- IO integrated with fires and maneuver
- Potent IO tools, available to the Joint Force Commander knowledgeable and experienced in their use
- Robust protection for information infrastructure

Also see classified annex

# ***Achieving Information and Decision Superiority: Information Operations***

## **Key Transformation Programs**

- **Define and implement a decision process for employing the full set of IO tools**
  - clarify roles of various DoD and other USG players and stakeholders
  - support the decision process with a Command and Control system for real-time use
- **Incorporate IO in**
  - Joint operational doctrine, operational planning, multi-level training
- **Strengthen integrated attack and warning capability to provide early assessments of attack on DoD systems**
- **Create a process to orchestrate the various IO tools together with combat ops to achieve effects-based outcomes**
  - strengthen efforts to model adversaries as complex adaptive systems
  - complement JWAC capability with other “Centers of Excellence” (e.g., to cover all of electronic space, influencing adversary’s perceptions)
  - Establish a “Center-of-excellence” to provide the intellectual understanding of IO as we have done in the past with IW, ASW, etc.

**An observation: The maturation of IO may be hampered by the aggregation of such disparate elements -- from computer network defense to psyops --within the IO label**

# *Decision Superiority: Four Suggestions*

- **Get tough with technical architecture standards, protocols**
  - Embed enforcement of standards into a disciplined process that includes operational testing of interoperability in a joint environment
  - Expand roles for JITC and ASCIENT
- **Assign resources and authority to develop and acquire the joint Command and Control system**
  - JFCOM and US SPACECOM are likely candidates for development role.
    - If JFCOM, relieve them of some other UCP responsibilities
    - If US SPACECOM, clearly direct them to become US Space and Information Command
    - Provide them resources (technical work force and control of funds) to direct system changes through spiral development
  - Select a complementary acquisition authority
- **Assign resources and authority to plan and oversee joint connectivity**
  - Rationalize SATCOM, commercial procurement, synchronization of service programs
  - Converge disparate communications programs to a robust high capacity cross-linked space/regional air relays/consolidated fiber grid
  - One approach: establish a National Communication Program Office to create joint system architecture and control funds for implementation
  - The intelligence community will be a partner in the NCPO in building the integrated communication networks
- **Assign resources and authority to develop and field family of interoperable operational pictures**
  - E.g., create a Joint Program Office (Task Force) with funds, technical support
  - Would work closely with JFCOM and other CINCs

# *Striking with Precision*

- **Value of the Capability**

Forces that Deter, Assure, Dissuade with capability to:

- Rapidly respond globally with U.S. based long range forces to lead or support deployed forces to strike many critical targets nearly simultaneously
- Integrate with forward operating forces as a single integrated force package
- Plan operations enroute to reduce response time
- Responsiveness improved by various alert postures that also demonstrate U.S. resolve.
- Directly insert ground forces to control centers of gravity

- **Critical Elements**

- Long Range Precision Attack
- Time Critical Precision Targeting
- Supporting Forces
- Direct Force Insertion

# ***Striking with Precision:*** ***Long Range Precision Attack***

## **Key Operational Capabilities**

- Offset the adversary's key access denial strategies
- Execute operational strikes from relative sanctuaries
- Penetrate defended air space and disable or destroy defenses
- Gain control of key airfields, seaports, and infrastructure
- Defend deployed forces

## **Enabling Capabilities**

- ISR assets that can locate key adversary's defenses and nodes
- Stealth aircraft with precision munitions
- Cruise missiles with precision strike capability
- Escort aircraft for force protection
- Direct Insertion Forces with standoff protection

# ***Striking with Precision: Long Range Precision Attack***

## **Key Transformation Programs**

**“A”**

- **Convert four Ohio SSBNs to SSGNs with maximum number of cruise missiles**
- **Enhance the B-2A force with large carriage capacity and flexible targeting capability**
- **Produce the Small Diameter Bomb**
- **Convert ALCMs to CALCMs; Increase B-52 conventional force for carriage**
- **Accelerate an improved Global Hawk deployment**
- **Develop stealthy Joint Long Range Cruise Missile**
- **Develop a new long range precision strike capability**
- **Accelerate Navy JSF fielding**

# ***Striking with Precision:*** ***Time Critical Precision Targeting***

## **Key Operational Capabilities**

- **Gain situational awareness**
- **Find Fix and Track fixed, mobile and moving targets**
- **Target and engage with precision target location**
- **Command and control within short timelines**
- **Assess success and re-attack quickly**

## **Enabling Capabilities**

- **Space and Airborne ISR platforms discussed in previous section**
- **Direct target insertion into platform and weapon**
- **Inflight or reachback planning capabilities**

## **Key Transformation Programs**

- **Joint Command and Control program initiative**
- **ISR and Communications programs described in previous section**
- **Planning and execution and assessment tools**
- **Inflight corrections to precision weapons after release**

# ***Striking with Precision: Supporting Forces***

## **Key Operational Capabilities**

- **Extend the range of bombers, fighters, transports and helicopters**
- **Protect aircraft entering hostile airspace**
- **Escort aircraft unable to counter attacking aircraft**
- **Provide command and control in the battle area when required**

## **Enabling Capabilities**

- **Develop tankers with long range and large offload capabilities**
- **Develop advanced electronic countermeasures capabilities**
- **Provide stealthy air superiority fighters as escorts**
- **Develop communications relay and direct system access on unmanned platforms**

# ***Striking with Precision: Supporting Forces***

## **Key Transformation Programs**

**“A”**

- **Develop a more efficient and operationally effective air refueling tanker**
  - Establish a blended wing body program office to exploit US contractors' initiatives
- **Field Global Hawk for communications relay and test with remote Command and Control concepts**

**“C”**

- **Seek advanced means of providing electronic support to penetrating aircraft**
  - Establish a program to develop alternatives
- **Support increasing F-22 production rate**
  - Ensure integrated situational awareness with supported aircraft

# ***Striking with Precision: Direct Insertion Forces***

## **Key Operational Capabilities**

- **Substantial ground force presence inserted directly into enemy centers of gravity within 24 hours of launch**
- **Agile, lethal and sustainable forces ready to fight on arrival**

## **Enabling Capabilities**

- **Global constant, accurate fused common relevant operating picture**
- **Enroute rehearsal capability**
- **Adequate air and amphibious lift capable of inserting ground forces by airborne, airland or amphibious means**
- **Greatly enhanced battlefield mobility through STOL and VTOL techniques**
- **Lethal and sustainable close air support**
- **Robust, light weight antitank capability**
- **A means of integrating each individual ground warrior into the "infosphere"**

# ***Striking with Precision: Direct Insertion Forces***

## **Key Transformation Programs**

### **“A”**

- **Space Based Radar - Provides continuous global wide area surveillance to include time critical targeting**
- **Enroute rehearsal - Integrated situational awareness data allows data updates and enroute planning and rehearsal changes for a force being air or sea lifted to objective areas.**
- **Comanche - Multirole (scout and strike) helicopter - crucial “seed corn” for Army’s future force - Link-16/SATCOM for interoperability - capable of digital targeting and full ISR integration w/ air, ground and sea nodes**
- **Javelin - Individual, shoulder fired AT weapon - Top attack or direct fire - 250% range increase, fires from enclosures, fire and forget.**
- **JSF - Stealth air support for ground forces**

### **“B”**

- **V-22 - Advanced tactical delivery options in austere / geographically challenging environments**
- **FBCB2 - Premier ground / air situational system worldwide - essential to direct insertion force situational awareness - expands current battlespace by 250% - integrates w/ Joint COP**
- **Land Warrior - Modular, integrated fighting system for dismounted combat soldiers - integrates ground warriors into "infosphere"**

### **“C”**

- **STOL - Provides C-130+ equivalent tactical and operational airlift**
- **AAAV - Ground centerpiece of future Marine force amphibious mobility - 4x the speed, 8x the sea launch range, substantial increases in protection and lethality**

# *Deploying and Sustaining Military Power Rapidly*

- **Value of the Capability**
  - Enables all Joint Response Force activities
- **Critical Elements**
  - Command and Control
  - Deploying
  - Focused Logistics
  - Forward Basing and Infrastructure

# ***Deploying and Sustaining Military Power Rapidly: Command and Control***

## **Key Operational Capabilities**

- A faster, more responsive world-wide logistics distribution, deployment, mobility, force-closure, and sustainment function
- Timely oversight, control, and direction of the overall logistics process

## **Enabling Capabilities**

- Blend strategic supply and transportation functions
- Integrate a system of network-centric logistics with strategic mobility capabilities and advances

## **Key Transformation Programs**

- Establish a distribution network to achieve synergy of all logistic functions, optimize support, and provide a single point of accountability, which will:
  - Close the planning and execution gap between operations and logistics (“opergistics”)
  - Reduce overall DoD inventories significantly
  - Offer significant reductions in management overhead

# ***Deploying and Sustaining Military Power Rapidly:***

## ***Deploying***

### **Key Operational Capabilities**

- **Ability to lift high volume of personnel, equipment or supplies by point-to-point, fast, advanced airlift**
- **Ability to deploy by Strategic or Intra-Theater Sealift at speeds significantly faster than today's ships**
- **Reduced build-up of logistics "footprint" in or near the area of operations through faster, more responsive, more focused delivery of sustainment**
- **Reduced dependence on developed ports and large destination airfields**
- **Ability to exploit pre-positioned assets, afloat, or ashore, by substantially improved speed and ability to move them intra-theater**

### **Enabling Capabilities**

- **Collaborative Command and Control network that integrates strategic supply and transportation functions**
- **Adequate numbers of short, or very short take-off and landing strategic lift aircraft and/or other advanced airlift systems**

# ***Deploying and Sustaining Military Power Rapidly: Deploying***

## **Enabling Capabilities (continued)**

- High speed strategic, intra-theater, and afloat prepositioning ships
- Effective means of off-loading ships in-stream, without dependence on developed ports

## **Key Transformation Programs**

**“A”**

- Monitor industry development of Blended Wing Body technology for application to long range tanker and transport aircraft

**“B”**

- Continued C-17 procurement and/or C-5 modernization in conjunction with advanced airlift programs to correct current airlift shortfall
- Advanced tactical airlifter capable of 80,000 pound lift and delivery to a 750 foot, unimproved runway (twice the C-130 lift capacity in 1/4 the runway length)
- High-speed sealift ships capable of sustained speeds of 45 knots (twice the speed of current fast ships) with significant on/off load capability
- Ultra heavy airlifters capable of lifting up to 2 million pounds of cargo (11 times the capacity of C-17) 5,000 miles in 3-4 days

**“C”**

- Advanced strategic tanker
- Joint logistics-over-the-shore (JLOTS) to enable sea-state-3 in-stream off-load (5-8 foot vs current 2-3 foot seas capability)

# ***Deploying and Sustaining Military Power Rapidly: Focused Logistics***

## **Key Operational Capabilities**

- Ability to move from “just in case” large logistics storage and operating area build-up to focused, accurate and responsive distribution
- Total, world-wide asset visibility of spares, parts, and supplies, with real time access for quick distribution
- Faster, more focused, better integrated response to customer

## **Enabling Capabilities**

- Web-based automation capabilities
- Direct linkage between the oversight and management of principal items of supply, and the means of distributing them

# ***Deploying and Sustaining Military Power Rapidly: Focused Logistics***

## **Key Transformation Programs**

- **Network Centric Logistics: A collaborative, web-based, logistics operations network of accurate, real-time data and on-demand communications**
  - **Accelerate total visibility of world-wide assets -- both supplies, and transportation means -- under a single commander with 50% reduction in customer wait time**
- **Reduced cannibalization of equipment to achieve on-scene readiness**
- **In CONUS storage and volume carried with deploying forces**
  - **Accelerate automated planning and training system to focus on logistics as a key element of force deployment planning, and to build confidence in the warfighter (“opergistics”)**

# ***Deploying and Sustaining Military Power Rapidly: Forward Basing and Infrastructure***

## **Key Operational Capabilities**

- Ability to provide support, maintenance, and sustainment training to forward deployed, and forward based forces.
- Ability to maintain critical relations with military allies, or potential allies throughout the world.
- Ability to deploy rapidly, and add robustness and operational depth to forward deployed, forward based, or CONUS deploying forces.

## **Enabling Capabilities**

- System of overseas installations or basing rights that sustain forward-deployed forces, and deployment of en-route transiting forces.
- Worldwide force positioning to maintain and enhance critical relationships through military-to-military contact.
- Installation usage agreements to enable training for forward based, and forward deployed forces.
- Network of prepositioned stores and equipment to expedite force deployment, enhance sustainment, and significantly reduce demands on strategic and intra-theater lift assets.

# ***Deploying and Sustaining Military Power Rapidly: Forward Basing and Infrastructure***

## **Key Transformation Programs**

- **Expand access to and provide infrastructure funding to upgrade overseas en-route, and return route refueling and maintenance bases**
- **Expand access to overseas ports that provide support and maintenance for forward deployed forces**
- **Maintain overseas bases that enable training of forward based, or forward deployed forces**
- **Modernize Maritime and Afloat Prepositioning Forces that enable rapid deployment expansion and application of forces to littoral crisis locations, and that provide dramatic reductions in lift requirements**

# *Dominating Land, Sea, Air and Space Battlespace*

- **Value of the Capability**

- Forces that are decisive on any battlefield with capability to:
  - Respond globally to build on forward deployed and rapid response forces
  - Integrate with or absorb previously deployed operating forces into a single integrated campaign force
  - Provide all required force sustainment
  - Conduct robust space, ground, sea and air campaign through integrated fires and maneuver enabled by advanced intelligence and logistics
  - Provide continuous joint or combined command and control capability

- **Critical Elements**

- Command and Control
- Maneuver and Mobility
- Intelligence
- Fires
- Logistics
- Protection
- Nuclear Chemical and Biological Defenses

# ***Dominating Land, Sea, Air and Space Battlespace : Command and Control***

## **Key Operational Capabilities**

- Ability to anticipate future battle space events and conditions
- Substantially compressed planning and decision cycles
- Continuous exercise of command and control regardless of battlefield conditions
- CJTF ability to interface directly with lowest echelon headquarters of the force
- An “infosphere” that encompasses land, sea, air, space and undersea

# ***Dominating Land, Sea, Air and Space Battlespace: Command and Control***

## **Enabling Capabilities**

- **Battle space awareness**
  - Real-time ISR support to combatants at all levels
  - Integrated all source information in near real-time at each operating headquarters
  - Constant, accurate common relevant operating pictures to include the lowest operating entity
  - Cross service platform and echelon integration of relevant information
  - Integrated management of intelligence collection with the planning and operations cycle
  - Decision support: The ability to develop accurate estimates of future enemy and friendly capabilities
- **Leader development programs**
- **Force level integration**
  - Full integration/ operability of systems across functional areas
  - Integration of personnel, organization structure, systems and procedures
- **Communications**
  - Adequate voice, data and video capability to avoid saturation or excessive queuing
  - Joint interoperability at every operating level

# ***Dominating Land, Sea, Air and Space Battlespace : Command and Control***

## **Key Transformation Programs**

**“A”**

- **Information Operations (Computer Network Defense/Computer Network Attack) - Dynamic effects-based operations across the entire spectrum**
- **E-2C Radar Modernization Program (RMP) - provides capability for precision overland surveillance for air defense against advanced air contacts and supports an OTH SAM**

**“B”**

- **FBCB2 - Premier Ground/Air Situational Awareness System Worldwide - Essential to interim and objective force operations - Expands current battle space by 250% - Feeds joint COP**
- **JTRS - Radio that enables joint interoperability - 500% increase in data throughput - Combines multiple legacy radio systems in one box**
- **WIN-T - “Adequate Pipes” for objective force operations - 400% increase in current network capacity and data transfer velocity - 25% reduction in force structures - Allows tactical Command and Control on the move**

# ***Dominating Land, Sea, Air and Space Battlespace : Command and Control***

## **Key Transformation Programs**

**“C”**

- **GCCS-A - Army’s only link to the joint common operating picture; provides army’s blue force input to COPS; army’s only interface to JOPES**
- **Distributed Common Ground Station, Air Operations Center - (w/ Family of interoperable Operational Pictures, Global Information Grid, GTACS) - improves our ability to make better decisions faster - faster than an enemy can react - assured decision dominance over adversaries**
- **Cooperative Engagement Capability (CEC) - Provides ability to engage LO contacts beyond the sight of onboard sensors or targets in a jamming environment**

# ***Dominating Land, Sea, Air and Space Battlespace : Maneuver and Mobility***

## **Key Operational Capabilities**

- **Rapid application of joint forces directly to centers of gravity with minimal Intermediate Staging Bases or support buildup**
- **Flexibility to recast or reorient forces in the midst of conflict**
- **Ability to apply decisive combat power throughout the battle area**

# ***Dominating Land, Sea, Air and Space Battlespace: Maneuver and Mobility***

## **Enabling Capabilities**

- **Ability to project forces from home station directly into forward operating areas**
- **Consistent, timely, accurate and complete total force visibility**
- **Ability to position the right force in the right place at the right time**
- **Ability to overcome enemy anti access measures**
- **Capability to quickly move, shift or reconfigure forces**
- **Ability to simultaneously concentrate overwhelming joint combat power at a chosen place and time**
- **Light lethal high mobility systems**
- **Day, night, all weather close air support for amphibious and land operations ashore**
- **Ability to apply force visibility to effectively exploit movement capability**
- **Fire support for land operations and deep strike ashore**

# ***Dominating Land, Sea, Air and Space Battlespace : Maneuver and Mobility***

## **Key Transformation Programs**

### **“A”**

- **Interim Armored Vehicle (IAV) - Centerpiece of brigade combat team - Worldwide deployable in 96 hours (212x C-17 sorties) ready to fight in close/complex/urban terrain**
- **Future Combat System (FCS) - Centerpiece of objective ground force - Will replace Abrams, Bradley, Crusader, Paladin, and current tactical Command and Control Systems - 50% Reduction in logistics - 100KPH burst speed - High capacity wireless networks**
- **Comanche Helicopter - Crucial “Seed Corn” for objective force - Link-16/SATCOM for interoperability - Capable of digital targeting, ISR integration, minimal logistical burden - First objective force system to be fielded**
- **Space Maneuver Vehicle / Space Operations Vehicle - Full dimensional mobility**

### **“B”**

- **V-22 Tiltrotor Aircraft - Aviation centerpiece of Marine Forces/SOCCOM battlefield mobility. Replaces 13 type/model/series aircraft. Provides 5x the range at 2x the speed of any current or envisioned helicopter.**
- **MV-22 and CV-22 - Advanced tactical delivery options in austere/geographically challenging environments**
- **Organic Mine Countermeasures (MC) is a family of ship launched, submarine launched and airborne sensors and weapons integral to the Battle Group allowing in-stride detection and neutralization of mines.**

# ***Dominating Land, Sea, Air and Space Battlespace : Maneuver and Mobility***

## **Key Transformation Programs**

**“C”**

- **GCCS/GCSS - Real-time, advanced, link communications at the core of real-time execution of military operations**
- **Advanced Amphibious Assault Vehicle - Ground Centerpiece of Marine forces mobility. 4x the speed; 8x the sea-launch range; twice the armor protection. MK-46 chain gun acquires target and shoots accurately at 20x current capability**
- **Active Electronically Scanned Array (AESA) Radar - provides capability to precisely locate and direct PGMs against fixed and mobile land targets and outreach all current threat air-to-air radars**

# ***Dominating Land, Sea, Air and Space Battlespace: Intelligence***

## **Key Operational Capabilities**

- **A consistent, timely, accurate and secure enemy picture in any conditions**
- **Anticipation of change in both enemy capability and intent**

## **Enabling Capabilities**

- **Consistent, accurate and timely enemy information to entity level of detail**
- **Unimpeded transport of enemy information in multi-media throughout all environments and situations**
- **Network robustness - Access control, advanced interactive visualization and displays, standardized data and management protocols, no single points of failure**
- **Multi-level access with security**
- **Decision support systems**
- **Ability to accurately apply enemy information to functions in support of Joint operations**

# ***Dominating Land, Sea, Air and Space Battlespace: Intelligence***

## **Key Transformation Programs**

**“A”:**

- **Tactical Unmanned Aerial Vehicle (TUAV) - Provides maneuver commanders dedicated day/night reconnaissance surveillance and target acquisition capability - has laser spotting and designation capability, communications relay and high resolution imagery**
- **Space-Based Radar, spectral imaging JSTARS w/ RTIP, Advanced AWACS, U-2, SENIOR SCOUT, ABCCC - Key elements: Dominant battlespace awareness -- the full range of vigilance necessary to anticipate and deter emerging global threats**
- **Sea-Based UAV - Adds carrier-based surveillance and increased precision targeting capability for 24 hour / day surveillance and targeting over land or water to support the rate at which precision strike firepower is increasing.**
- **Advance UUV - Family of SSN-launched, untethered UUVs to conduct maritime reconnaissance, undersea search and survey (for anti-access weapons such as moored or bottom mines), aid in communications and navigation, and submarine track and trail.**

# *Dominating Land, Sea, Air and Space Battlespace: Intelligence*

## Key Transformation Programs

“B”:

- **Maritime Multi-Mission Aircraft (MMA) - multi-mission (undersea warfare, anti-surface warfare, C4ISR) patrol aircraft/UAV -- or a combination of both -- providing armed surveillance of maritime and littoral regions working in concert with distributed sensor networks such as sonobouys or fixed sonar arrays.**

“C”:

- **Aerial Common Sensor (ACS) - Replaces Guardrail and ARL supports deep fires in excess of 250KMs - (HIMARS, ATACMS) - Provides multi-int from maneuver force to JTF**
- **PROPHET - Highly mobile multi-sensor ground collector/jammer - Quadruples frequency coverage, reduces footprint and sustainment cost (replaces three current systems)**
- **Distributed Common Ground Systems- Army (DCGS-A) - Replaces five current intelligence processors - Allows reachback for national and theater inputs - Reduces footprint, force structure and sustainment costs - Distributed Common Ground Station, Air Operations Center-X (w/ Family of Interoperable Operational Pictures, Global Information Grid, GTACS)**
- **Advanced Deployable System (ADS) - Provides cueing for an ASW area denial capability with rapidly-deployable (in areas and times of crisis) fixed sonar arrays that have near-certain probability of detecting diesel and nuclear submarines or mine laying ships**

# ***Dominating Land, Sea, Air and Space Battlespace: Fires and Precision Attack***

## **Key Operational Capabilities**

- Assured destruction of time critical targets at much increased range in all weather conditions
- A rapid deployable, sustainable and agile set of ground direct and indirect fire systems capable of rapid use and rapid integration into the joint fires family
- Air strike forces capable of creating precise effects rapidly with the ability to retarget quickly against large target sets anywhere, anytime for as long as required. Deterrence against WMD attacks and coercion.

## **Enabling Capabilities**

- Simultaneous real time predictive target information at each operational level
- Significantly enhance nodal analysis of targets and objectives
- Greatly enhanced capability to focus dynamic operations at detecting, identifying and directing fires/forces effects against time critical targets
- Greater dispersal of fires platforms with emphasis on massed effects vice massed forces
- Ability to effectively integrate Ground Fires capabilities with combined arms capabilities

# ***Dominating Land, Sea, Air and Space Battlespace: Fires and Precision Attack***

## **Key Transformation Programs**

**“A”**

- **JAVELIN - Individual, shoulder fired AT weapon - Top attack or direct fire - 250% range increase, fires from enclosures, fire and forget, low maintenance**
- **HIMARS - First light (17 ton) C-130 deployable multiple rocket launch system - Attacks SCUDs, TELs and armor at 10 to 300 KM range - Joint program with USMC**
- **Small Diameter Bomb (SDB) - Greater precision, decreased collateral damage**
- **Unmanned Combat Air Vehicle (UCAV) - Full dimension attack capability**
- **Vertical Take-off UAV (VTUAV) - operate from surface combatants and amphibious ships**
- **Trident SSGN - carry land attack missiles, potentially doubling on-scene precision strike firepower that cannot be located or targeted by any known threat**

# ***Dominating Land, Sea, Air and Space Battlespace: Fires and Precision Attack***

## **Key Transformation Programs**

**“B”:**

- **ATACMS - All weather precision engagement to 145KM Block II and IIA - Up to 300 KM w/ IIA - Greatly expanded target set**

**“C”:**

- **LOSAT - KE missile defeats projected armor to 4+ KM range - C-130 deployable, airlifted by UH-60 - Can acquire and track 2 targets simultaneously**
- **F-22 - All aspect/multiple frequency stealth, supercruise, data integration provides aircraft capable of day one access in 2010+ threat environment.**
- **Joint Strike Fighter (JSF) - Replaces 20-30 year old tactical strike/CAS aircraft fleet. Dramatic increase in lethality, survivability and supportability. Increases world-wide existing runway usage by 600%. Employed from platforms at sea, expeditionary airfields and pads, or available fixed airfields.**
- **Tactical Tomahawk (TACTOM) -- In-flight GPS or stored mission flex-targeting. Range increase of 50% and new loiter and battlefield surveillance capability. Can quickly strike relocatable targets**
- **Advanced Stand Off Munitions (JASSM-ER, ERCM, LRCM) - Improved stand-off capability enhancing anti-access challenge for joint follow-on force**
- **Supersonic Strike Missile - Capable of striking time-critical relocatable targets promptly (3x as fast) from standoff ranges.**
- **Crusader Technology Program - 250% improvement over current rate of fire, 66% increase in range, 59% increase in accuracy - Leap ahead technology carrier for FCS in Command and Control, logistics, integrated mission planning, proactive decision aids, imbedded training**

# ***Dominating Land, Sea, Air and Space Battlespace: Logistics***

## **Key Operational Capabilities**

- **Accurate, timely and consistent situational awareness of all logistics entities from CONUS to the point of use**
- **Greatly reduced theater logistics requirements and mature reach back capability**
- **An agile and pervasive doctrine that underwrites the meshing of logistics and operations to allow logistics to become anticipatory rather than responsive**

## **Enabling Capabilities**

- **Access by any user to operational and logistics data worldwide from a single terminal**
- **Robust networks that link operational and support force networks**
- **Integrated pictures showing operational and logistic unit readiness**
- **Total asset visibility of transportation and cargo**
- **Ability to effectively apply logistics status/capability support of force capabilities/needs**
- **Reduced theater footprint and inventories**
- **Delivery of tailored support and sustainment packages directly to the JOA**
- **Mobile, modular, light equipment to expedite movement and support**
- **Leveraged industrial base to streamline military response**

# ***Dominating Land, Sea, Air and Space Battlespace: Logistics***

## **Key Transformation Programs**

**“A”**

- **Space Maneuver Vehicle / Space Operations Vehicle - Full dimension combat support**

**“B”**

- **C-17 - Enhancement /acceleration to provide critical strategic and operational logistic movement of men/materiel -- fundamentally expands JFC options for force deployment/employment**
- **High Speed Sealift ships for strategic intra-theater, and prepositioning lift at 2x the speed of current fast ships**

**“C”**

- **Additional C-17s combined with ultra-heavy airlifters with 11x the capacity of C-17 and Advanced Theater Transport Aircraft with twice the capacity of C-130s**

# ***Dominating Land, Sea, Air and Space Battlespace: Protection***

## **Key Operational Capabilities**

- Consistent, complete, secure and timely common operating picture of the AOR
- The ability to gain and maintain air superiority as desired
- The ability to anticipate and act to counter threats before initiation
- The ability to deny information to an enemy
- Credible deterrence against WMD attack and coercion
- The ability to render an adversary's cruise and ballistic missiles ineffective

## **Enabling Capabilities**

- Common, accurate, near real-time situational awareness of all detected airborne objects at each operational level
- Multi-source, joint correlation and integration of air and missile threats
- Near real-time fusion of all source fire control quality data
- Efficient use of engagement systems to minimize deployment footprint
- Consistent near real-time detection and tracking of all militarily significant entities within the AOR
- Anticipatory actions to dissuade terrorist attacks
- Deception and security programs
- Ability to effectively plan and use protection capabilities in support of force activities

# ***Dominating Land, Sea, Air and Space Battlespace: Protection***

## **Key Transformation Programs**

### **“A”**

- **PATRIOT – “Hit to kill” technology - Simultaneously engages 3x as many TBMs as PAC-2, increases the defended battle space by 7 - Radar has 3x current range - 4x increase in firepower**
- **Improved Tactical High Energy Laser (THEL) - to defeat targets that cannot be defeated by either PAC-3 or THAAD**
- **Airborne Laser (ABL) - Provides boost-phase intercept capability**
- **Space Based Radar (SBR) - Continuous global wide-area surveillance to include time critical targeting**
- **Space Based Laser Technology (SBL) - Continuous global boost phase ballistic missile intercept/space control**
- **Space Control - Full spectrum force protection, denies adversary capabilities (Micro-sat, laser, directed energy systems)**

### **“B”**

- **SENTINEL - 360 degree /24 hour, all weather digital air picture, double current range - Addresses fixed and rotary wing aircraft, cruise missiles, large caliber rockets and UAV threats**
- **Navy Area Defense - Immediate sea-based defense against short/medium range ballistic missiles; protecting, in the earliest days of a conflict, on-scene joint forces and littoral ports and airfields, critical infrastructure required for the rapid deployment and sustainment of the Joint Force**
- **Navy Theater Wide Defense against medium/long range ballistic missiles, providing wide-area protection for regional targets such as population centers, reassuring threatened allies and providing second layer of defense for ports and airfields**

# ***Dominating Land, Sea, Air and Space Battlespace: Protection***

## **Key Transformation Programs (Cont'd)**

**"C"**

- **HUMRAAM/ CLAWS - Extends current SHORAD capability by 8 times over STINGER - C-130 and CH-47 deployable - Operational on arrival MEADS - 60% less lift required than PATRIOT – 360 degree coverage - C-130 deployable, transportable by CH-47 and CH-53**
- **F-22 - All aspect/multiple frequency stealth, supercruise, data integration provides aircraft capable of day one access in 2010+ threat environment. Distills air dominance, suppression of enemy air defense and precision attack into a single platform**
- **THAAD - First system to engage intermediate range ballistic missiles - Designed to counter threats that exceed PAC-3**
- **Large Aircraft Infrared Counter Measures (LAIRCM) - Platform protection against IR missiles**

# ***Dominating Land, Sea, and Space Battlespace: Nuclear, Biological and Chemical (NBC) Defenses***

## **Key Operational Capabilities**

- **Ability to project force and conduct military operations in the face of the NBC threat (deny adversaries the use of NBC as a high leverage threat)**
- **Minimize casualties**

## **Enabling Capabilities\***

- **High quality attack warning and contamination assessment**
- **Individual and collective protection compatible with mission accomplishment**
- **Advanced decontamination**
- **Multi-threat vaccines and therapeutics**
- **New deployment force concepts that reduce the vulnerability to attacks, e.g., through reduced reliance on easily targetable deployment and logistic nodes.**
- **Hardening of selected systems**
- **Ability to attribute source of NBC use**
- **Attack operations against NBC**

\*These constitute only a part of a comprehensive posture to deal with these weapons

# ***Dominating Land, Sea, and Space Battlespace: Nuclear, Biological and Chemical (NBC) Defenses***

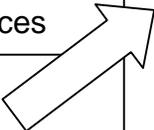
## **Key Transformation Programs**

- **Establish reachback Joint NBC Environment Analysis Center to support operations commands in NBC related planning and consequence management**
- **Expand and accelerate current efforts to provide warning and protection at CONUS and OCONUS force projection sites**
- **Develop next generation hazard prediction modeling and simulation capability**
- **Increase NBC forensics capabilities to facilitate attribution**
- **Expand program to detect, characterize and attack hard and buried targets**
- **Expand electronics hardening capability**
- **Ability to project force and conduct military operations in the face of the NBC threat (deny adversaries the use of NBC as a high leverage threat)**

# JOINT RESPONSE FORCE CAPABILITIES

	HOSTILE ENVIRONMENT	PERMISSIVE ENVIRONMENT	HUMANITARIAN
<p><b>SET THE CONDITIONS</b> 24 HOURS</p>	<p>Joint Command &amp; Control ISR Long Range Precision Attack Special Operations Direct Insertion Force Forward Deployed Forces</p>	<p>Joint Command &amp; Control ISR Missile Defense Sustainment APOD/SPOD Support Ground Combat Units Theater Precision Attack Forward Deployed Forces</p>	<p>Joint Command &amp; Control ISR Airlift Security Psyops / Civil Affairs Special Operations</p>
<p><b>ESTABLISH CONTROL</b> 96 HOURS</p>	<p>Missile Defense Ground Combat Units Theater Precision Attack Forward Deployed Forces APOD/SPOD Support</p>	<p>Mobility Construction Civil Affairs/ Psyops Interagency Support Unit Infrastructure Mgt Sustainment</p>	<p>Mobility Construction Civil Affairs/ Psyops Interagency Support Unit Infrastructure Mgt Sustainment</p>
<p><b>DECISIVE RESOLUTION</b> 30 DAYS</p>	<p>Full Capability Ground Units Expeditionary Land, Sea and Air Forces Population Control/ Coordination Reserve Forces Sustainment</p>		<p>Contractor Support Law Enforcement NGO Interface Civil Affairs / Psyops Training Maintenance</p>

ADD



ADD

# *Humanitarian Relief Operations*

- **Create a small Joint headquarters capability that can respond globally to be the catalyst for swift resolution of natural or man-made disasters and set conditions for introduction of government and non-governmental organizations. Creates environment for use of commercial contract operations and law enforcement**
  - **Maintains an experienced planning and command and control element ready for deployment**
  - **Maintains staff with specialties that coordinate US government response and interface with NGO's (includes interagency representatives where possible)**
  - **CINC provides Commander and key staff when committed**
  - **Draws on national and CINC assets for ISR**
  - **Maintains staffing capabilities for airlift, security, PSYOP/Civil Affairs, Special Ops**
  - **Draws on theater and CONUS-based “decisive resolution” forces as necessary for mobility, construction, infrastructure management, and sustainment, but objective is to employ non-DoD support as much as possible (contractors, law enforcement, training, maintenance)**
- **Primary purpose in maintaining this as a separate capability is to keep the more rapid deployable Joint Response Forces modules combat ready for regional contingencies against armed adversaries**

# *Summary of Transformation Programs*

- **Organized by military capabilities**
  - Achieving information and decision superiority
  - Striking with precision
  - Deploying and sustaining military power rapidly
  - Dominating land, sea, air and space battlespace
- **Arranged in transformation groups**
  - A: Enable new ways to fight
  - B: Preserve capabilities for new ways to fight
  - C: Provide robustness to transformation
- **New programs highlighted by** 

# *Achieving Information and Decision Superiority Programs*

## A Enable new ways to fight

**Joint Command and Control**  
**Robust High Capacity Reachback Connectivity**  
**Modify/Accelerate Joint Tactical Radio System (JTRS)**  
**Accelerate Joint Airborne Communication Relays**  
**National EHF and Laser SATCOM**  
**High Density, Networked ISRT**

- Increase quantities/capabilities: Global Hawk Family, Tactical UAV, Aerostats, Unattended Ground Sensors, Foliage Penetration Radar, Ground Penetration
- Complement with upgrades to AWACS JSTARS, E-2C

**Info Warfare**

# *Striking with Precision Programs*

## **A Enable new ways to fight**

Trident SSGN  
B-2A Avionics Modernization/Enhanced Conventional Carriage  
Miniaturized Weapons Capability: Phase I, Small Diameter Bomb

ALCM/CALCM Conversion; Increase B-52 force for Carriage  
Accelerate Improved Global Hawk Deployment

Stealthy Joint Long Range Cruise Missile  
Develop New Long Range Precision Strike Capability

Accelerate Navy JSF Fielding  
Advanced Electronic Support for Penetrating Aircraft

Space Based Radar

Comanche

V-22

Javelin

## **B Preserve capabilities for new ways to fight**

Exploit Blended Wing Body Technology Initiatives for Advanced Tanker

Enroute Rehearsal

JSF – Stealth Air Support for Ground Forces

STOL Tactical Airlift

## **C Provide robustness to transformation**

F-22 Increased Production Rate

AAAV

Land Warrior

# *Deploying and Sustaining Military Power Rapidly Programs*

**B Preserve Capabilities for new ways to fight**

**C-17**

**Advanced Tactical Airlifter  
High Speed Sealift**

**C Provide robustness to transformation**

**Advanced Strategic Tanker  
Exploit Blended Wing Technology Initiatives for Long Range Transport**

**Ultra Heavy Airlifter  
Network Centric Logistics**

# *Dominating Land, Sea, Air and Space Battlespace Programs*

## **A Enable new ways to fight**

**Future Combat System (FCS)**

**Information Operations**

**E-2 Radar Modernization Program (RMP)**

**Interim Armored Vehicle (IAV)**

**Comanche**

**Space Maneuver and Operations Vehicle**

**Tactical Unmanned Aerial Vehicle (TUAV)**

**Space Based Radar**

**JSTARS w/RTIP**

**Advanced AWACS**

**Senior Scout**

# *Dominating Land, Sea, Air and Space Battlespace Programs*

**A Enable new ways to fight (cont.)**

**Sea-Based Endurance UUV**

**Advanced Unmanned Underwater Vehicles**

**JAVELIN**

**High Mobility Artillery Rocket System (HIMARS)**

**Small Diameter Bomb (SDB)**

**Unmanned Combat Aerial Vehicle (UCAV)**

**Vertical Takeoff Unmanned Aerial Vehicle (VTUAV)**

**Trident SSGN**

**PATRIOT**

**Tactical High Energy Laser (THEL)**

**Airborne Laser**

**Space Based Laser**

**Space Control**

# *Dominating Land, Sea, Air and Space Battlespace Programs*

## **B Preserve Capabilities for new ways to fight**

**Force XXI Battle Command Brigade-and-Below (FBCB2)  
Joint Tactical Radio System (JTRS)  
Warfighter Information Network – Tactical (WIN-T)  
V-22/MV-22/CV-22  
Organic Mine Countermeasures  
Maritime Multi-Mission Aircraft (MMA)  
Army Tactical Missile System (ATACMS)  
C-17 Enhancement/Acceleration  
High Speed Sealift Ships  
SENTINEL Radar  
Navy Area Ballistic Missile Defense  
Navy Theater Wide Ballistic Missile Defense  
Nuclear, Biological and Chemical defenses**

# *Dominating Land, Sea, Air and Space Battlespace Programs (cont'd)*

**C Provide robustness to transformation**

**Global Command and Control System – Army (GCCS-A)  
Distributed Common Ground Station (DCGS)  
Cooperative Engagement Capability (CEC)  
Advanced Amphibious Assault Vehicle (AAAV)  
Active Electronically Scanned Array (AESA)  
Aerial Common Sensor (ACS)  
PROPHET  
Distributed Common Ground System - Army (DCGS-A)  
Advanced Deployable system (ADS)  
Line-of-Sight Anti Tank-KE (LOSAT-KE)  
F-22  
JSF  
Tactical Tomahawk**

# *Dominating Land, Sea, Air and Space Battlespace Programs (cont.'d)*

**C Provide robustness to transformation (cont.)**

## **Advanced Stand-off Munitions**

- **Joint Air-to-Surface Strike Missile, Extended Range (JASSM ER)**
- **Extended Range cruise Missile (ERCM)**
- **Long Range Cruise Missile (LRCM)**

## **Supersonic Strike Missile**

**Crusader Technology Program**

**Ultra-Heavy Airlifter**

**Advanced Theater Transport Aircraft (STOL)**

**HUMRAAM/ Complementary Low Altitude Weapons System (CLAWS)**

**Theater High Altitude Air defense (THAAD)**

**Large Aircraft Infrared Counter Measures (LAIRCM)**

# ***Transformation of Research and Development Infrastructure***

- **Government and Industry Defense R&D Base Decreasing**
- **R&D Primarily Organized by Individual Services and Agencies**
- **Joint/Integrated Issues Addressed Late – After Systems Are Developed**
- **Greater Coordination and Integration of Defense R&D Warranted**
  - **Competitive Technologies Should Be Encouraged**
  - **Critical Mass Will Require Inter-agency Cooperation**
  - **Technology Handoff Into Acquisition Community Needs Increased Emphasis**
- **Strong OSD Staff Oversight of Defense R&D Integration and Rationalization Required**

# *Transformational R&D*

- **Develop and mature the technology needed to enable mid-long term continuous transformation**
- **Major thrusts**
  - **Information and Decision Superiority**
    - **Decision Support Tools**
    - **Navigation and timing**
      - **Robust navigation and timing in hostile environment**
      - **NAVWAR to deny adversary use of GPS**
    - **New sensors across electronic spectrum**
    - **Laser communications**
      - **Enhanced bandwidth with new degrees of freedom for spectrum use**
      - **Planned redundant links to connect fiber nodes**
    - **Advanced ELINT**
  - **Information Warfare - offensive & defensive**
    - **Need strong secure complex of labs and R&D efforts**
    - **Need to connect labs with operational vision**
    - **Need IW/IO career path**
  - **Advanced Power - high power density, portable**
    - **Energy storage (e.g. Advanced batteries, micro-fuel cells)**
    - **Electrical generator and handling (e.g. Fuel cells, micro-turbines)**

# *Transformational R&D (cont'd)*

- **Directed Energy**
  - Continue advancement in high energy beam propagation & control
  - Push maturation of solid state devices
- **Stealth & Counter stealth**
  - Maintain sustained investment in stealth for next generation of bomber, fighter, weapons (to include unmanned)
  - Maintain our current edge to counter adversary stealth
- **Robotics**
  - Need for spiral development air, land, sea, undersea
  - Need for experimentation & development of doctrine
  - Need to leverage and share results (e.g. Air -- Land)
- **Non-lethal Capabilities**
  - Provide spectrum of options for dissuasion, influence and control
  - Need means for experimentation
- **CW/BW Defense**
  - Need sustained program for detection and characterization
  - Active and passive protection
  - Engage the bio-tech industry

**See classified annex for additional information**

# *Transformation Enablers*

## ESSENTIAL ENABLING CAPABILITIES

UNIT TRAINING  
LEADER DEVELOPMENT  
COMBAT DEVELOPMENTS  
RAPID ACQUISITION  
DOCTRINE DEVELOPMENT

## ESSENTIAL MOVES TO JOINTNESS

EXPERIMENTATION  
MODELING AND SIMULATION  
JOINT EXERCISES / TRAINING

## CINCS' ENGAGEMENT CAPABILITIES

PARTNERSHIPS  
COMBINED EXERCISES  
COMBINED EDUCATION  
FOREIGN SALES/ASSISTANCE

## INSTITUTIONALIZING TRANSFORMATION

SKUNK WORKS  
USJFCOM ROLE  
FUNDING  
REVIEW  
TRAINING

# *Essential Enabling Capabilities*

- **Unit Training** - Establish CONUS East Coast Joint Unit Training Area and West Coast JUTA. Integrate training areas through enhanced line, constructive and virtual links. Accelerate completion of JSIM
- **Leader Development** - Enhance JTF Command and Staff training (JFCOM). Accelerate electronic exportability of the program to widen availability and enhance standardization.
- **Combat Development** - Enhance JFCOM's role as executive agent for experimentation to the JROC. Link the timing of experimentation output to the PPBS.
- **Acquisition** - Establish a joint rapid acquisition resource line to allow acceleration of key emerging technologies. Candidates should emerge from joint experimentation be recommended by the JROC and approved by JCS (or CJCS).
- **Doctrine Development** - Develop joint training doctrine for JTF Command and Staff training programs to assist in performance standardization.
- **Active/Reserve Component Integration** - Accelerate efforts to optimize utility of reserve component forces in daily operations.

# *Essential Moves To Jointness*

## **JFCOM and Experimentation**

- Clear SECDEF guidance about JFCOM's role in transformation
- Divest JFCOM of its NATO and AOR responsibilities
- JFCOM should:
  - Formulate a clear concept of operations for 21st century joint warfighting as a cornerstone for transformational activity
  - Establish an experimental JTF headquarters structure
  - Continue development of a virtual national experimentation venue for scalable experimentation up to major theater of war - Include opposing force and red team
  - Partner with DARPA to link emerging technologies to experimentation
  - Chair a forum to engage CINCs and services through concept development and experimentation
- Generate a clear process for linking JFCOM experimentation outputs to the defense PPBS

## **Modeling and Simulation**

- Accelerate integration of services modeling and simulation capabilities to form an effective joint capability

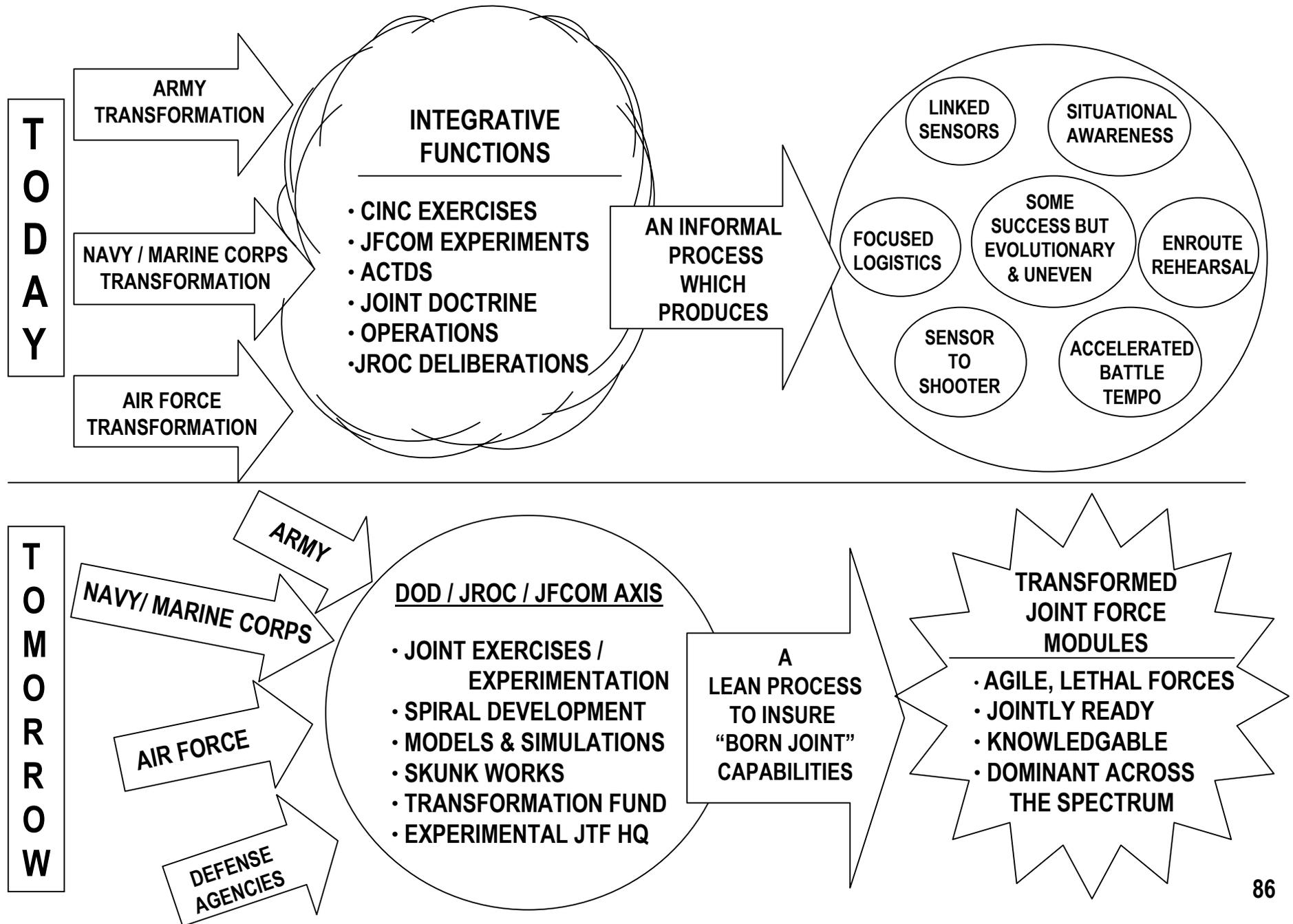
## **Joint Exercises and Training**

- Focus live joint training efforts on early deploying headquarters and forces. Accelerate distributive training efforts for later deploying forces

# *CINCs' Engagement Capabilities*

- **Combined Exercises/Education/Partnerships** - Review location and staffing of MILGROUPs worldwide to determine applicability to changing world environments.
- **Foreign Sales/Assistance** - Consider strategic shift of Security Assistance assets based on world geo/political shifts and changing influence patterns driven by US force relocations (i.e. Asia/Africa/Latin America)
- **Presence, Forward Stationing, Mobile Training Teams** - Link deployable presence to service and joint rotational platforms. Optimize reserve component impact in this area.

# TRANSFORMATION PROCESS AND PRODUCT



# *Institutionalizing Transformation*

- **Establish a means for independent input and assessment of transformation**
  - Set up an internal, “skunk works” to form the intellectual underpinning for transformation
  - Set up a standing red team to aggressively challenge transformation initiatives
  - Assure that senior level, outside expertise is made available
- **Establish USJFCOM as an integral part of the development and validation of future transformation visions and initiatives.**
  - Mission and responsibilities should be focused to concentrate on concept development, experimentation and training activities in direct support to the overall DoD transformation vision
- **Establish a SecDef Transformation Discretionary Fund**
  - Flexibility to quickly fund transformation initiatives of extraordinary potential.
  - Funded on an annual basis on the order of \$500M
- **Establish a periodic SecDef Transformation Review Process**
  - Reassess and refine overall transformation goals and initiatives
  - Major input to the PPBS and long range planning process
  - Responsibility for the review’s conduct should reside in the Joint Staff.
- **Establish an educational initiative to engrain transformational thought processes throughout the professional military and civilian career development paths.**

# *Consequences of Transformation Focus*

- **Establishes Integrated Joint Force Information/ Decision Superiority**
  - Harnesses the power of Joint network-centric operations
  - Leverages U.S. asymmetric advantages
- **Matches Weapons to Information/decision Capabilities**
  - Precision, discrimination, rapid employment
  - Integrates shooters with sensors, command, and control
- **Strengthens Global Power Projection of Forces**
  - Provides agile high-speed lift
  - Forces arrive quickly and ready to fight
  - Reduces logistics footprint
- **Allows Rapid Land, Sea, Air, and Space Battlespace Dominance**
  - Deters use of existing hostile forces
  - Dissuades development of future hostile forces
  - Minimizes risk to U.S. forces and interests

# ***Some Consequences of Transformation***

*in addition to the significant enhancements in warfighting & dissuasion capability*

- **Force size offset by increased capability**
  - Improved performance of new system allows replacement at less than 1 for 1
  - Robotics offer ability to leverage smaller number of manned systems
- **Reduced O&S cost**
  - Newer equipment is less expensive to support
  - Terminate SLEP of old equipment (e.g. C-5) as newer equipment (e.g. lighter forces) becomes available
- **Reduced logistics tail**
  - Total asset visibility minimizes misplaced / “lost” equipment
  - New system designed with reduced logistics footprint
- **Faster application of new technology**

## *Study Conclusions*

- **Integration and synergy that true Jointness brings is the most powerful transformation concept**
- **Joint Command and Control is the most enabling transformation program**
- **Focus Transformation on new capabilities for Joint Response Forces**
- **Initiate new programs identified as essential in transformation**
- **Review and accept acceleration of special access programs identified**
- **Missile defense, space dominance, information dominance and intelligence are also essential transformation areas**
- **Institutionalize the transformation process in the DOD**

**Annex--**  
**Broader Transformation Capabilities**

# *Broader Transformation Capabilities*

- **Conventional Forces depend on military capabilities that are also essential beyond their support of military operations:**
  - **Missile Defense**
    - **Ballistic**
    - **Cruise**
  - **Space Superiority**
  - **Information Dominance**
  - **Intelligence**
  - **Forward Deployed Forces**

# *Ballistic Missile Defense*

- **Pre-launch defeat is the first line of defense**
- **Focus on the spectrum of needs – protecting deployed forces, allies, US homeland**
  - **Field the first block of the mid-course system as soon as possible – follow with block upgrades**
  - **Pick the highest potential terminal systems and focus resources to field as soon as possible**
  - **Adequately fund the first increment of the ABL system using the COIL laser while continuing R&D on follow-on laser systems**
  - **Start definition of a robust, sea-based boost phase system**
  - **Accept program risk to facilitate early deployment**
- **Focus the Space-based laser in-flight demonstration on collecting engineering and design information – devote more resources to recyclable laser systems**

# *Cruise Missile Defense (CMD)*

- **Increased emphasis on fielding CMD capabilities needed**
  - **Serious threat proliferation potential (conventional and advanced)**
- **Substantial technology investments have been made to develop significant CMD capabilities**
- **Critical actions:**
  - **Field integrated battle management / C3I system**
    - **Expand use of comprehensive joint simulation capability**
  - **Accelerate fielding of:**
    - **Advanced airborne surveillance and fire control sensors**
    - **Air directed Surface-to-Air missiles (SM, PAC3)**
- **Declassify mission area (not underlying technology)**

# *Space Superiority*

- **Space capabilities are:**
  - Inherently global
  - A source of direct access to all regions
  - Unaffected by territorial boundaries and jurisdictional limitations
  - Highly asymmetric in favor of the U.S.
  - Potentially vulnerable to attacks
- **U.S. national security approach to space should:**
  - Protect the U.S. from hostile uses of space
  - Accelerate U.S. use of space for national interest--military and commercial
  - Ensure U.S. access to space
    - Stockpile an additional two year inventory of Russian RD-180 engines
  - Make commercial space capabilities preferred choice for DOD/IC peacetime requirements
    - Communications
    - Imaging
    - Sensing

# *Space Superiority*

- **Address Recommendations of Space Commission**
  - Develop military and civilian cadre experienced in space-related activities
  - Organizational Change
  - Exercise Space Control
- **Make U.S. Access to Space More Robust**
  - Adequate government support of EELV Program
  - Accelerate R&D on Space Maneuver Vehicle and Aero-vehicle technologies
- **Broaden National Security Space Capabilities**
  - Add Defense of Space-based Capabilities to Forces
  - Integrate present and future capabilities into a global ISR Capability
  - Emphasize Surveillance to Complement Reconnaissance
- **Expand Space Control programs**

# *Exploiting Space Superiority*

- **Enable Rapid Power Projection**
  - Develop rapid access to space
  - Project power through space to any region in hours
    - Develop Space Maneuver Vehicle (SMV) for sortie platform
    - Develop Common Air Vehicle as primary SMV payload
- **Dominate Space Battlefield**
  - Establish high-performance microsat program
    - Defensive missions
    - Offensive missions
  - Focus first deployment of SBIRS-LOW on BMD requirements
    - Offensive missile warhead discrimination
    - Offensive missile warhead tracking
    - Transmission of fire control data to interceptor system
  - Improve the integration of space-based and airborne reconnaissance and surveillance

# *Information Dominance*

- **Policy**
  - Resolve organizations, authorities, relationships, roles & missions, etc.
  - Define roles and interfaces vis-à-vis law enforcement, national telecom coordination (NSTAC), and critical infrastructure protection activities
  - Develop and prove policies & doctrine including relationships with allies/partners
- **Partnerships**
  - Strong integrated partnership with intelligence community (especially NSA & CIA), infosec (NSA) and industry
  - Ensure intelligence community is supporting information warfare
  - Improved threat collection and analysis is critical
- **Resources**
  - CINC & JTF-CNO need increased resources, and to exercise, game & simulate, and empower for attack/defend missions and exploit (intel) coordination
  - Focus on protecting COTS against vulnerabilities
  - Pursue advanced R&D technology development
  - Attack includes both kinetic and non-kinetic capabilities

# *Information Dominance (Cont'd)*

- **Space-Based Support**
  - Develop high resolution (DTED-5) Global Geospatial Framework
    - Provides foundation for spatial information management
    - Enables common operational picture of battlefield
  - Emphasize GPS-3 implementation and deployment
    - Improved access control
    - Additional jamming resistance
  - Accelerate Space-based Radar Development
    - Advance from intermittent coverage to persistent RSTC
      - Synthetic aperture radar imaging
      - Moving target indicator
      - Interferometric change detection

# *Information Dominance (Cont'd)*

- **Space-Based Support (2)**
  - Increase space surveillance capability
    - Identify and track
      - microstats to GEO
      - nanostats to LEO
    - Develop and deploy hyperspectral imaging system
    - Initiate R&D on ultraspectral imaging system
  - Accelerate COBRA BRASS F or deploy gap filler
  - COMINT and ELINT (classified annex)

# *Intelligence*

- **Dramatically improve access to adversary secrets (major deep penetration improvements)**
  - Requires new sources and methods
  - Focus on improved SIGINT as a priority, but HUMINT also needs improvement (better tooth to tail)
  - Focus on preventing surprises
  - Focus equally on “what you don’t know”
  - Improves overall security and info warfare posture
- **Focus on transformation technologies & concepts that deliver strong intel results**
- **Better integrate ISR collection, processing, analysis & overall intel availability to customers**
  - Focus on modernized integrated multi-sensor air & space platforms, capabilities (including links/onboard processing)
  - Improve the backend processing & analysis capabilities
  - Better customer access to intel via e-business-like solutions
  - Some form of better integration of SIGINT, imagery, ISR access to produce a more seamless intel project to users
  - Improve speed of service by reducing intel bureaucracy
- **Fix counterintelligence & security (long list of recommendations here)**
- **Streamline intel acquisition processes using unique DCI authorities & DoD reform procurement concepts**
- **Create strong linkages between intel and info warriors**

*Also See Classified Annex*

# *Importance of Forward Deployed Forces*

- **Postured to provide a robust set of forces and capabilities to support warfighting CINCs and our global national security interests**
  - Forward Stationed Forces
  - Forward Presence Forces
  - Prepositioned Equipment
- **Strategic value**
  - Signals US commitment and strategic intent
  - Sustains US global leadership by cementing coalitions and enabling alliances
  - Promotes stability, prevents conflict and deters aggression
  - Operationalizes treaties and security agreements, thus setting the conditions for peace and security over time
  - Sees and influences the environment in real-time

# *Importance of Forward Deployed Forces*

- **Operational value**
  - Trained and ready forces for crises
  - Capable of meeting many in-theater requirements
  - Force provider for other CINCs
  - Enhance interoperability and strengthen the capabilities of allies and potential security partners
  - Eyes and ears oriented on potential battlefields - clear mission focus, culturally and geographically acclimated
  - Provide foundation for rapid and decisive crisis response
    - Receive, integrate, support and/or control forces from out-of-theater
    - Assure access and improve force protection for early entry forces
- **Essential contributor to broader CINC Theater Engagement Plans that shape the international environment in support of US interests**

*Last Slide*